# Low-Pressure Fuel Evaporative Test Program

## UPDATE

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# Low-Pressure Fuel EVAP
## (Fuel Tank Pressure Test)

**1.0 Background**

**2.0 Smog Check Benefits**

**3.0 State of Readiness**

**4.0 Summary**

# 1.0 Background

1.1 Regulatory Issues

1.2 Economic Issues

1.3 Health & Safety Issues

1.4 Technical Development

1.5 Industry Concerns

1.6 Environmental Concerns

# 1.1 Regulatory Issues

- SIP Commitments for 2002 Implementation
- Smog Check Performance
  - Existing SIP shortfalls of 30% by 2010 to meet 1 hr standard
  - Even greater improvement to meet 8 hour Ozone Standard
- 2001 EPA Air Toxics Rule
    - Benzene - Acute Non-lymphocytic Leukemia
    - 20 other listed contaminants
- Reg Package at BAR must be submitted

# 1.2 EVAP Program Economics
## Dollars & Common Sense

### Comparative Cost / Ton Excess HC

Arizona IM240 = $13,787/Ton

Carl Moyer Limit = $18,000/Ton

Fuel EVAP Test = $ 9,000/Ton +

### *Fuel Savings per Vehicle Repaired*

7300 TPY ÷ 100,000 EVAP failures

***24 gals/yr per vehicle***

# 1.3 Health & Safety Issues

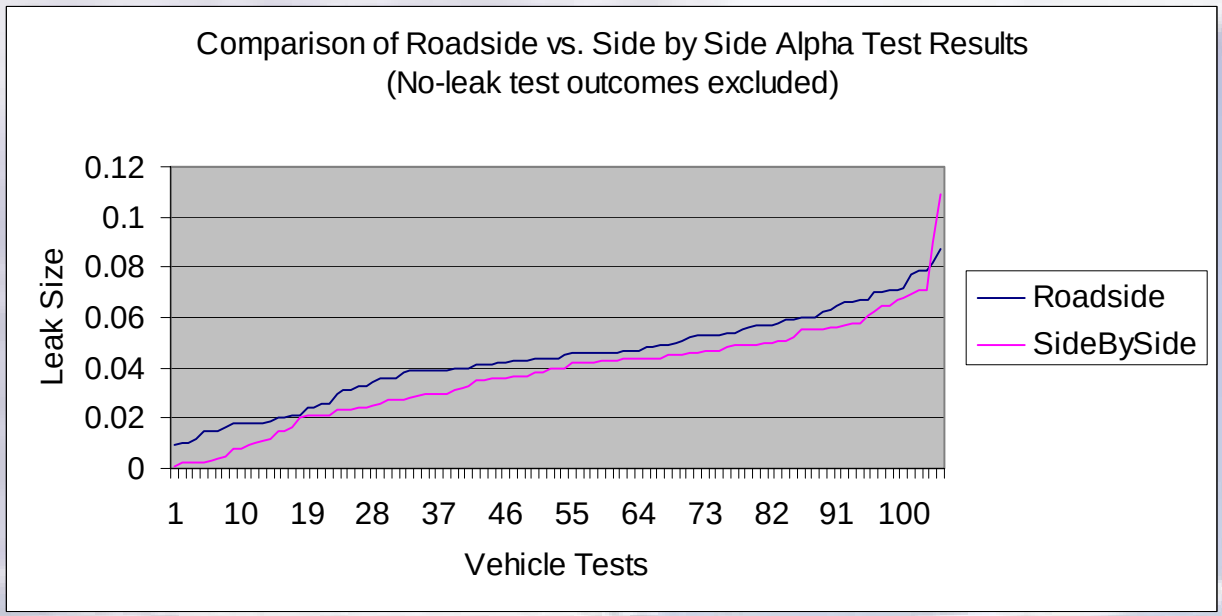
- Risk of exposure to Volatile Organic Contaminants 24 hrs every day
- Increased Liquid Leak Identification
  (Most concentrated source of ozone precursors)
- Prevention of accidental ignition hazards
- Reduction of Air Toxics (Benzene)
- Mitigates VOC Infiltration into Passenger Compartments and Homes

# 1.4 Technical Development

- Several confirmatory studies w/ more planned (6 mos delay?)
- Almost 5000 vehicles tested
- $2.5M in industry development costs n/i BAR & ARB expenditures
- More accurate and able to compensate for variables than any previous version
- Internal Self-test & external Calibration routine to insure long-term accuracy
- Errors of Commission practically 0% based on threshold tolerance

# 1.41 Test Accuracy

- Measures hole size within a few thousandths of an inch
- Pinching reliability = 97%
- Possibility of False Fails < 0.3%
- Filler Neck Adapters nearly identical to Fuel Cap Test
- Roadside vs Alpha Test Data matches

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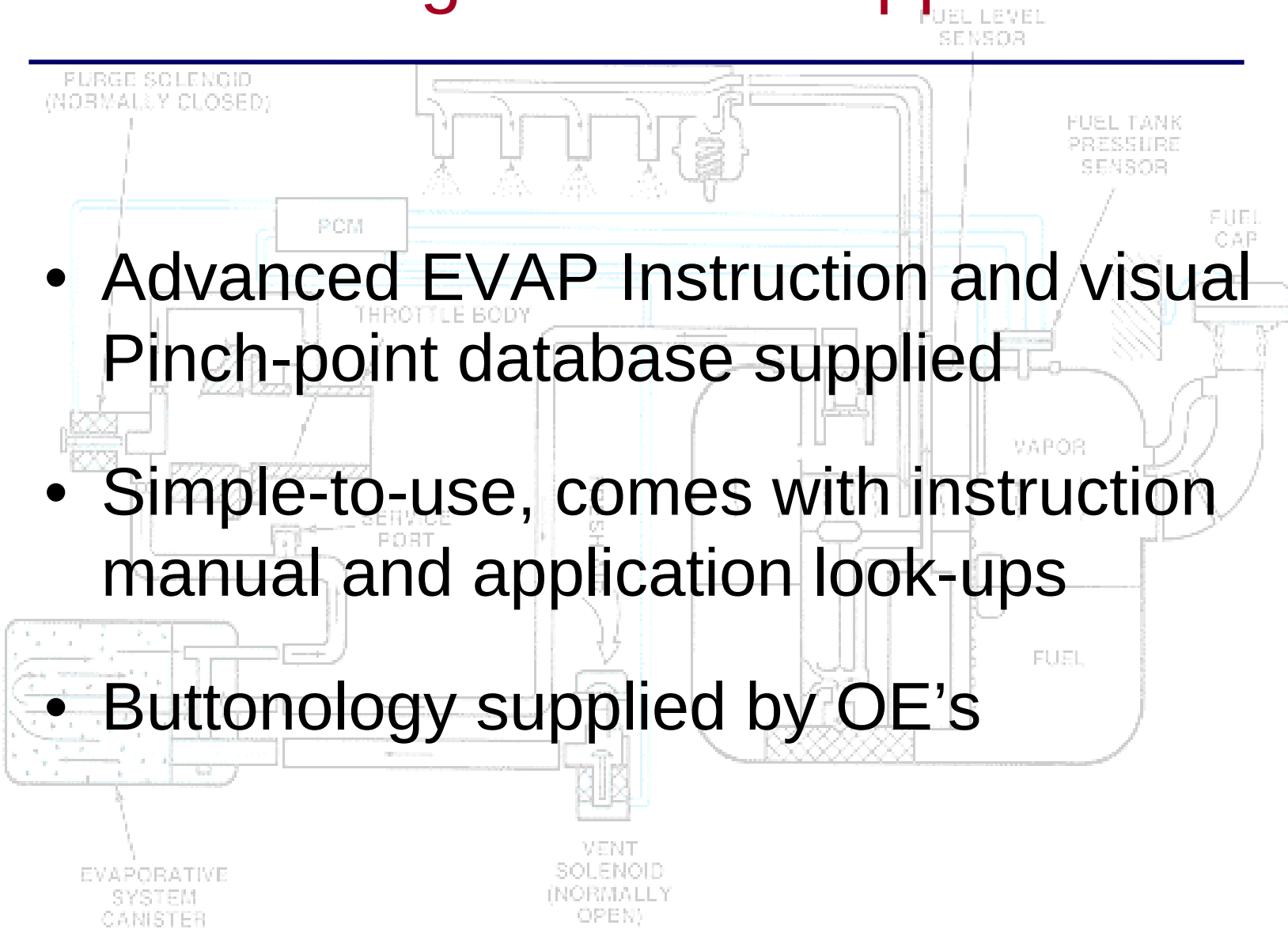
# 1.5 Industry Concerns

- Viability of Test & Repair Industry
  - Redirection to Test Only
  - Extended Warranties
  - Loss of Change-of-Ownership tests
  - 1st Six Model Years Exemption
- Types of repairs and expected value
- Verification of repairs w/ built-in diagnostics
- Technical Resources and Training

# 1.51 Industry Concerns
## Shop Investment Analysis

- Assumptions
  - (A) Inspection Equipment Cost = $2250
  - (B) Diagnostic/Repair Equipment Cost = $750
  - (C) Inspections per year > 620
  - (D) Value-added inspection fee = $4
  - (E) Fail Rate = 10%
  - (F) Average Repair Cost = $150
  - (G) Profit Margin = 40%
  - (H) Equipment Maintenance & Operating Costs = $100 yearly
- Calculation
  - ROI = (A + B) / ((C*E)*(F * G)) + (C * D * G) - H) = 8 months

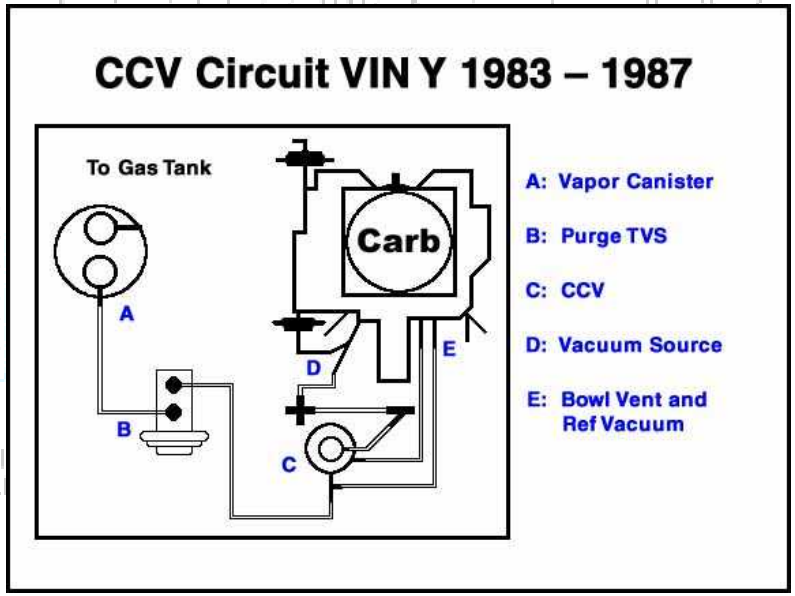
# 1.52 Training & Vehicle Applications




- Advanced EVAP Instruction and visual Pinch-point database supplied
- Simple-to-use, comes with instruction manual and application look-ups
- Buttonology supplied by OE’s

# 1.53 Training & Vehicle Applications

- Visual Vehicle-specific Pinch-point Database
- Vehicle Emission Labels
- Evaporative System Theory (Vapor Trail)
- OE specific features
- Tampering & Common Failure Identification
- Evaporative System Components
- Warnings & Precautions



# 1.6 Environmental Concerns

- **Significance of older fleet HC contribution**
  - "In 2010 it is projected that those cars 13 years and older will account for about 75% of the HC and NOx emissions from the light duty fleet …" (from April 2004 Draft Smog Check Evaluation)
- **Loss of benefits from further delays**
  - **20 TPD to 40 TPD Estimated Benefit**
  - **33,000 Tons VOC's** lost from 6/02 to 6/05
- **Direct Air Toxics* Exposure to occupants**
  - **Chronic Benzene Inhalation in Passenger Compartment**
- **Direct Air Toxics* Exposure in Homes**
  - **ARB Study of Attached Garages**

# 1.61 Environmental Concerns

- **Ethanol EVAP Consequence**
  - **ChevronTexaco & CARB 9/29/04 Project Summary**
- **June 2002 SIP Commitment**
- **Environmental Equity**
  - **Older Car owners exposed to toxics while newer cars have OBD to detect onboard EVAP failures**
- **Loss of 30% of Fuel Cap Benefit***
- **No consideration yet for Liquid Leaks**
- **Leak Threshold 20x that of Cap Test**

# 2.0 Smog Check Benefits

- Compliance w/ 2000 SIP
- Satisfy Commitments to prevent litigation
- Progress towards 1 hour standard (8 hour standard?)
- Mitigate EVAP increases from Ethanol (2x perm)
- Capture significantly more liquid leaks (33 tpd ?)
- Tests between older and newer fleets more equitable
- Recapture 30% of Gas Cap Test Benefit (5 tpd)
- 7500 to 15000 Annual Tons VOC Reductions

# 3.0 State of Readiness

- Production Hardware version complete
- Basic Production Software complete
- Multiple units submitted for field testing
- Alpha and Roadside testing consistent
- Stakeholder Meetings and workshops conducted
- Manufacturers committed to full production
- Pinch-point Reference Tables completed
- Reg Package must be signed and submitted
- Start Date must be announced

# 4.0 Summary

- Technology is sophisticated, robust & READY
- Essential to SIP Compliance
- Air Quality Benefits from further delays can never be replaced
- Costs and suffering from health effects
- Air Quality Benefits are extraordinary
- Everyone gains from health, safety & economic benefits